HORTICULTURAL SOCIETY EXHIBITION---SUGGESTIONS FOR THE GARDNER---SOME EXPERIMENTS IN GRAFTING

Order without delay, all bedding plants needed and arrange for delivery at the time wanted. At a later date stocks are likely to be sold out and purchasers will then be unable to obtain the plants wanted to complete their bedding.

Every year in their haste to see the garden in its summer dress, amateurs expose tender plants to the chilly weather of early spring, only to injure them and set them back in growth of plants put out a little later. As a rule, for cannas, coleus and similar tender plants June first is early enough. Roses, carnations, stocks and plants that will not suffer from slight frosts may be planted out earlier.

Rhododendrons and lilies will be benefited by a heavy mulch of dried leaves, tan bark or salt water hay, given at this season. This insures a cool, moist soil for their roots.

Attack weeds when they are small. If this is done it will be less work to keep the garden clean. Weeds are gross feeders and rob garden plants of the food they require.

The Luther Burbank Press publishes the works of the horticulturist. The vice-president of the company is John G. Whitson, which evidently sounds better just now than Edmund A. Koppel, the name under which he was known when actively promoting the sale of stock of the Autopress Company a few years ago.

Wire poultry netting becomes too hot from the rays of the sun to make it desirable for sweet peas. Use brush or old tennis nets.

In buying real estate for a home purchasers generally are influenced by the number and arrangement of the trees. Vacant property can be purchased and a house built in comparatively short order, but it takes years to develop large trees. The fault of too many trees can be quickly remedied by the axe, but time alone can develop trees.

A purchaser of a large New Jersey property travelled quite thoroughly over two or three counties and said that the ideal spot in the whole territory, just the property wanted, a tract of nearly a hundred acres, was declined because on the whole property there were not more than half a dozen large trees.

The Rochester Florists Association and the vegetable growers of central and western New York will occupy a building 150 feet long and 100 feet wide at the Rochester Exposition, which is to be held the last week in August and the first two weeks in September. No charge will be made to exhibitors for space.

HORTICULTURAL SOCIETY EXHIBITION.

The Horticultural Society of New York together with the American Rose Society will have an exhibition of roses and peonies, Saturday and Sunday, June 5 and 6, in the Museum Building, New York Botanical Garden, Bronx Park.

The American Rose Society offers a silver medal for the best outdoor grown roses; bronze medal for best outdoor grown hybrid teas; bronze medal for best vase of outdoor grown hybrid perpetuals. All growers of hardy roses and peonies are invited to exhibit, and all flower lovers are invited to attend the exhibition.

Schedules will be sent on application to the secretary, George V. Nash, New York Botanical Garden, Bronx Park, New York city.

Annuals may still be sown, and the half hardy kinds, like asters, stocks and phlox, may be sown in the open ground for late blooming.

Bedding plants can be put out now. Coleus and verbenas will do quite as well if not set out until the first day of June.

Dahlias can be planted now, although the tubers may be planted throughout June.

Greenhouses require free ventilation at this season.

Sweet peas should be staked when they are four inches high or before.

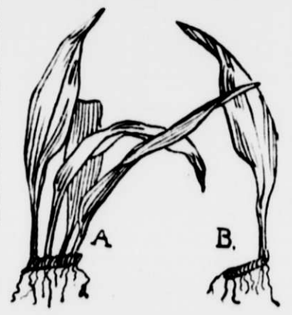
Now is a good time to sow, for next year's flowers, honesty, Canterbury bells and delphinium.

Old dahlia tubers can be potted early in the season, getting them to make good top and bottom growth before setting them out.

ASPIDISTRAS.

No ornamental plant is more simple of culture than the aspidistra, and few plants receive more neglect.

The aspidistra is a handsome evergreen foliage plant, unequalled for dwelling room decoration. The chief difficulty with them is giving too little water in summer and too much in winter. When plants become too large for the pots the leaves crack because they have not room to properly develop, and growth becomes poor on account of the exhausted condition of the soil. Too little water in summer starves the plants at the period when they should be making new growth.



Too much water in winter sours the soil, which kills the plants.

All plants out of condition should be repotted in the spring. Good garden soil with sufficient sand added to insure good drainage will grow good plants, but for best results there is nothing better than four parts good loam, one sixth part sand and one sixth part fine charcoal, thoroughly mixed.

If the plant is simply to be repotted turn the ball of earth from the pot and reduce the soil by carefully picking it off with a pointed stick. Repot in a clean pot of suitable size, placing plenty of broken crock at the bottom for drainage. Spread the roots out carefully and work the soil well in among them, setting the crown not more than an inch below the surface and water well as soon as the plant is potted.

Figure D shows a well grown plant that will require dividing another season. Plants more crowded than this should be divided at once. Wash away all the soil when the plant is removed from the old pot. Cut through the root stocks where desired with a sharp knife. Figures A and B show divisions with one and with several leaves. Divisions with several leaves will make good plants quickly, while single leaf divisions will take much longer.

Properly Planted Division.

Figure H shows a division planted too deeply. Figure F shows the operation of washing the leaves, which should be done frequently—at least once a week, for the health of the plant and to keep the foliage looking well. Figure G shows the method of keeping pots in bowls, supporting the pot with two blocks of wood to allow the water to drain freely from the soil in the pot. Empty the water from the bowl as often as necessary to keep it from coming in contact with the bottom of the pot.

One Leaf Division Staked Up.

ANNUAL PLANTS FOR NEWLY GRADED GROUNDS.

A few well chosen annual plants placed on newly graded grounds will do much to take the place of trees and shrubs until the latter may have time to grow. It is often a question in a new community, where slow growing vegetation has not had an opportunity, as to what may be done to make grounds seem less bare. A lawn can be made in a few weeks and its appearance may be greatly increased by the addition of a few well chosen annuals.

The following plants are particularly suited for this purpose and may be grown in most parts of the United States:

Tall Foliage Plants—Castor bean, calladium, canna.

Tall Flowering Plants—Cosmus, scarlet sage, sunflowers.

Border Plants—Alternanthera, alyssum, ageratum, coleus.

Medium Tall Annual Flowering Plants—Geranium, California poppy (Eschscholtzia), zinnia, marigold, aster, petunia, cockscomb, larkspur, nasturtium.

Climbing Annuals—Cobsea scandens, moonflower, Japanese morning glory.

Lawns are the foundation of all decorative planting. A good, well kept lawn contributes more to the beauty of grounds than any other single factor. For this reason special attention should be given to the grading, cultivation and enriching of the area to be devoted to the lawn. After good preparation come good seed and care.

For localities north of St. Louis, Mo., and Richmond, Va., lawns can be formed chiefly of bluegrass, redtop and white clover. South of this point Bermdua grass and St. Augustine grass will have to be relied upon chiefly, although it is said in some places alfalfa has been employed with good results.

120 ENGLISH SPARROWS TO THE SQUARE MILE.

Bird Census Shows That American Birds Are Too Few.

Sixty pairs of English sparrows to the square mile or seven to every 100 native birds is the average throughout the United States, according to the preliminary census of birds of the United States," which has just been completed by the Government biologists. A new bulletin (No. 187) tells all about this census, and bird lovers may obtain it by writing to the United States Department of Agriculture, Washington, D. C.

The census seems to show that the bird most abundantly found in the United States is the robin, with the English sparrow a close second. In the northeastern United States, where the census was most thorough, there were on an average six pairs of robins to each farm of fifty-eight acres. English sparrows averaged five pairs per farm. No other bird is anywhere nearly as abundant as either of these, but some are numerous enough to make their total run well into the millions. Taking 100 robins as a unit, other desirable birds were noted in the following proportions:

Catbirds, 49; brown thrashers, 37; house wrens, 28; kingbirds, 27; bluebirds, 26.

The statistics regarding bluebirds are particularly gratifying. Only a few years ago nearly the whole bluebird population of the eastern United States was destroyed by a severe winter, but there are now several millions bluebirds in this locality.

As for density of population on each acre of farm land covered by the census there was an average of one pair of birds. The record for density comes from Chevy Chase, Md., where 161 pairs were found nesting on twenty-three acres. Thirty-four species of birds were represented.

While there are no previous official censuses of the Federal Government that are comparable with this one, several censuses have before been taken by individuals on more or less limited areas. One census taken in 1901 by a specialist agrees very closely with the Government's census as far as the total number of birds is concerned. It differs, however, regarding the number of English sparrows, showing 106 pairs to the square mile or 18 to every 100 native birds, while the new census, as previously stated, showed only 60 pairs to the square mile or 7 to every 100.

Bird Population Less Than It Ought to Be.

The present bird population is much less than it ought to be, according to the biologists. If birds were given more protection and encouragement there would be an increase in numbers which would be accompanied by a corresponding decrease in the number of insect pests. That breeding birds prefer thickly inhabited centres of population to forests is one of the conclusions of the census. This seems to refute the widespread belief that humans and birds are naturally antagonistic. It also seems probable that as our human population increases so will our bird population.

Volunteer Census Takers Desired for 1915.

The biologists of the department plan to repeat this census for several years and on a much larger scale if bird lovers throughout the land are willing to aid in the work. The department's biological survey furnishes the necessary instruction and report blanks to whoever wishes to cooperate. There are no funds to pay for this work and it therefore depends on volunteer observers. Farmers in the West and South are particularly requested to help, as these sections did not receive sufficient attention during the past year. The 1915 circular of instructions will be sent early in the spring to the volunteer census takers.

GRAFTING EXPERIMENTS.

In an interview, George Edward Hall, an old horticulturist, said:

"A freak of nature in the plant world is produced by some interruption resulting in something entirely new, better or worse than its parent. To establish the best fruit or cereal find the best freak and perpetuate it, or cross it with the next best and produce still better. In forest size is wanted, in orchard quality.

"Years ago in California I purchased an old orchard that at one time had been famous, containing all the best Eastern apples, but it had long been uncultivated and the trees, seemingly, were worthless. It had been planted in deep soil, and this facilitated my work with the roots. The worn out and diseased trunks were cut off below the surface of the soil and the roots uncovered. I found in some instances immense root formation quite out of proportion to the growth above ground and vice versa.

"Wherever there was a large root there was better top growth in every case. I found also that the difference in the size of the roots began in the nursery bed, where the trees were originally started, and this leads me to believe some of the greatest mistakes in orchard work are enacted in the nursery. Root stock is frequently produced from feeble seeds. In Vermont last summer I learned that nurserymen were paying good prices for apple seeds gathered from the pulp of cider apples, and as a rule the poorest apples only find their way to the cider mill. Trees from this seed will produce a large percentage of poor root producing stock, and consequently, no matter from what stock the buds or grafts may be supplied, all poor trees will result.

"After sawing off the trunks of the trees in the California orchard the cut surface was smoothed over carefully, so as not to injure the encircling bark, vertical slashes were made about three inches downward, opening the bark to receive a scion cut wedge shaped to fit the opening, pressing it well down to the round of the scion. Four to ten scions were inserted, according to the size of the trunk. The object was to form a crown around the trunk.

"The top of the trunk was covered with wax composed of one pound of beeswax, three pounds of rosin, two pounds of tallow and one pound of soap. This was applied hot, commencing at the centre, being careful not to damage the bark with the heat of the application, sealing tightly the cracks around the scions. The earth that had been removed was then replaced.

"The scions used were from four inches to two feet long from which all but four or five of the upper buds had been removed, thus forming a small tree the first year. Growth became rapid, especially after the first year, and gained greatly over nursery trees planted, fruiting three to five years sooner.

"Last season I added a new feature to this experiment in the State of Vermont. Instead of using wax to cover the stump top I waited until the bark peeled, then cutting from the bark of the fallen trunk a piece the size of the top of the stump, tacking it down carefully, binding firmly over the bark remaining on the stump so the cambium layers, lying between the bark and the wood, matched properly. In this case the scions were set a little below the top of the stump by slashing the bark at right angles, opening one of the lower corners, inserting the wedge cut scion, which was afterward waxed and tightly bound. Late last autumn this stump was examined, and the bark which topped the old stump was growing nicely together with the side bark and the scions were doing well.

"The habit of using feeble buds or scions as well as splitting the heart of trees I consider most pernicious.

"I recommend that aged or diseased trees be cut down, the stump removed after sawing off the leading roots, the ends of the roots lifted into the air and light, and properly capped with wax or bark, they will send forth new shoots, perpetuating their kind, or they can be grafted as described. After its first season of growth drop the root and its growing trunk back into the trench that its junction may be covered and thus protected.

Grafts on Old Stump.

"Wherever a feeble or aged tree is found, nature's effort at recovery can be seen in adventitious sprouts or suckers appearing from the more vigorous roots. If you want a new tree quickly let one of these sprouts grow. If you want it farther away follow one of the leading roots out toward its terminal to the place you choose, dig and lift up the root to the sun's warmth, and an heir will soon appear that will surpass the growth of the parent."

LOCATING A PEACH ORCHARD.

In locating a peach, as well as any other orchard, other advantages must be considered besides the natural ones of climate and soil. If an orchard is too remote from a shipping station, too far away from a suitable market or located where ice for refrigerator cars cannot be conveniently supplied, it may not be possible to grow peaches there profitably.

Peaches may do well on a wide range of soil types including even some of the moderately heavy clay loams and clays. But whatever the type, a soil must be thoroughly well drained to be suitable for peaches. They will not succeed on poorly drained soils. It follows that the heavy clay types, which are so hard and impervious that water does not percolate through them readily are to be avoided as a rule. Moreover, a soil should be moderately fertile. One very rich in nitrogen is not to be desired as a general rule, since it is likely to induce an excessive growth of foliage. On the other hand, the impression which is somewhat common that a poor, unfertile soil is "good enough for peaches" is erroneous.

In districts in which alkali soils occur sites should be selected with a view to avoiding them. While the peach tree can be grown where there is a limited amount of the alkali salts, they cause disaster if present in large quantities. It is safer, therefore, to avoid them as far as possible.

Generally, a site that is elevated considerably above the surrounding areas is to be preferred. Relative elevation is generally of greater importance than actual elevation above sea level.

It is a well recognized fact, though one too often overlooked in selecting sites for orchards, that cold air settles to the lower levels. For this reason it is often colder at the lower elevations than it is at higher points in the same locality. This is what is meant by "atmospheric drainage." The occurrence of frost in low places when there is none on elevated areas is thus explained. For the same reason peach buds are often winter killed or the blossoms are injured by frost in the spring in low places when nearby orchards on higher elevations are injured much less, or even escape entirely.

Where an orchard occupies a site that is adjacent to a large body of water, the importance of a relatively high elevation largely disappears. To be a factor in the matter, however, a body of water must be of sufficient size and depth to have an appreciable influence on the local climate. Because the water warms up in the spring more slowly than the atmosphere, it acts in effect as a refrigerator, making the temperature in its immediate vicinity colder than it is at points somewhat distant from it. For this reason, vegetation within the zone of this influence advances more slowly in the spring than it does outside of that zone. The tendency is for the blossoming of peach trees situated within the zone to be delayed until after the season of spring frosts is past.

In the fall, frosts are delayed in a similar manner, except that the large body of water, having absorbed much heat during the summer, cools off in the fall more slowly than the atmosphere, and hence it tends to keep the temperature within its zone of influence warmer than it would otherwise be.

It is because of these reasons that peaches are grown with marked success, and injury to the crops by adverse temperature conditions is comparatively infrequent in the portions of New York and the Province of Ontario that border Lake Ontario; in Ohio, along Lake Erie; in southwestern Michigan, on Lake Michigan, and in some other districts which are adjacent to large bodies of water. As a rule, the zone of influence of bodies of water, such as those named, is rather narrow, usually not extending back from the shore more than a few miles.

The slope or exposure of a site is the point of the compass toward which the land inclines. A question very commonly asked is, "What slope is best?" It is one that admits of no direct answer. No one slope is preferable under all conditions and in all regions. In fact, the influence which a particular exposure may have in the success of an orchard is probably much overemphasized in the popular mind.

As a rule, it is doubtless safe to assume that a site having a moderate slope in some direction is to be preferred for orchard purposes, other things being equal, to one that is level. One having a slope will usually have better soil and atmospheric drainage than a level area.

Thirty-nine of our forty-eight States have peach interests of commercial importance and owing to the wide interest in the subject we hope to give a series of illustrated articles on peaches, beginning with planting the seed, budding and grafting, details regarding planting, tillage, maintaining fertility of the soil, pruning, spraying, picking, sorting and marketing the fruit. In the meantime those interested in peach growing can obtain Bulletin No. 631 of the Agricultural Department, Washington, D. C.

NITRATE OF SODA ON OLD MEADOWS.

On an old meadow which has not been properly fertilized a top dressing of nitrate of soda is almost certain to show very marked results. The farmer is likely to be so enthusiastic over the showing made that he at once concludes that nitrogen is the one factor needed to make his hay crop a profitable one. Right here lies the danger. While the first application of nitrate of soda may show these marked results, it is not by any means safe to conclude that nitrogen is the only element of fertility needed. Repeated applications of nitrate of soda may soon result in no apparent benefit and even result in a final condition worse than the original condition. The first application of nitrate of soda shows such marked results because there is a marked deficiency of nitrogen in the soil; but there is sufficient of the other fertilizing elements, particularly phosphorus and potassium, to balance the nitrogen used. The increased crop yields from the use of nitrate of soda make an increased drain upon the available phosphorus and potassium of the soil. No effort being made to replace these elements thus removed, the time very soon comes when no response is received from the application of nitrate of soda because the phosphoric acid and potash have been depleted, or, in other words, are the limiting factors. As a rule, where nitrate of soda is used as a fertilizer it is a safe principle to use in connection with it some form of phosphorus and potassium, having in mind permanent results rather than a temporary increase due to the nitrate of soda.

Watsonias closely resemble gladioli. They are Cape bulbs and require the protection of a cold frame during winter. The flowering season is June in the garden, or they may be grown successfully in the greenhouse.

Tunica have flowers smaller than the dianthus; some are hardy annuals and others perennials. They thrive in light soils and are good for rockeries and at the front of mixed borders. Propagated from seeds or the perennials by division of the roots.

Houstonias are hardy perennial plants, natives of our Northern and Western States. They thrive best in a moist situation and are particularly well adapted for borders, rock work or shaded beds. The flower colors are blue, white, scarlet and purple. Plants are propagated by division of roots. Houstonias are useful for surfacing the pots in which bare stemmed plants are growing.

Freezing weather during winter has a valuable disruptive action on the soil, when manure has been spaded in before freezing weather sets in, where the surface of the soil is left rough. This operation should be repeated annually. Northerners should appreciate the value of the action of the frost, which is a real labor saver. In the South, where the soil does not freeze, the manure may be applied in the autumn and the soil repeatedly spaded during the winter whenever it is dry enough to be worked. This will accomplish the same result as the action to the frost in the north.

There is a great demand for the light one horse lawn mower cutting a swath eighty-six inches wide. This mower is made by S. P. Townsend & Co., Orange, N. J. The triplex, as the mower is called, is operated by one man, and cutting such a wide swath gets over an enormous surface in a day. The mower is light and better for lawns in warm weather than roller mowers.

The article on calceolarias and gloxinias published last week should have been credited to the Missouri Botanical Garden Bulletin.